FURTHER NOTES ON THE AFRICAN MOLOSSID BAT *TADARIDA ALOYSIISABAUDIAE*

By R. L. Peterson[1]

Abstract: Four additional specimens of *Tadarida aloysiisabaudiae* are recorded, bringing the total known number to seven. Two are fully adult males, the first known. Sexual dimorphism is described and illustrated in the relative sizes of the anterior premolars. The conformations of the basisphenoidal pits are described and their taxonomic value discussed. *Tadarida russata* is shown to be the closest known living relative, differing primarily in relative size (shorter skull and forearm length), and its only known locality is mapped along with those of *T. aloysiisabaudiae*.

Only three specimens of the central African bat *Tadarida aloysiisabaudiae* have been previously reported (Peterson, 1967). These consisted of two adult females and a subadult male. Two additional specimens have since been received by the Royal Ontario Museum (a second adult female and a subadult male), and two specimens have now been identified in the collections of the Los Angeles County Museum of Natural History (the first known adult males).

The holotype was taken from the Toro district east of Ruwenzori, Western Province, Uganda (Festa, 1907, 1909; see Fig. 1, No. 1), whereas the second specimen (a subadult male) was collected at Avakubi, Oriental Province, Congo (Allen *et al.* 1917; Koopman, 1965; see Fig. 1, No. 2). The original and two subsequent specimens in the Royal Ontario Museum came from near Masindi in the Budongo Forest, Uganda, and were collected by John G. Williams or his associates (two in 1966, one in 1968; see Fig. 1, No. 3). The two adult males in the Los Angeles County Museum of Natural History collection (Cat. Nos. 27478 and 27479) were collected in the Kibale Forest, 0° 50′ N, 31° 06′ E (approximately 35 miles east of the type locality) on November 9, 1966, by Robert Glen and Andrew Williams (see Fig. 1, No. 4), under NSF grant GB-5107.

A review of the measurements of the seven known specimens (Table 1) shows that the adult males tend to be larger than the adult females in the following cranial characters: palatal length, mastoid breadth, lachrymal breadth of rostrum, interorbital breadth, and in the breadth and the height of the braincase. As in several other molossid bats, the anterior lower premolar is relatively heavier in the males. In the occlusal view, the anterior premolar is approximately equal to the posterior premolar, whereas in the females it is noticeably smaller than the posterior one (see Fig. 2).

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In a preliminary review of a number of the species in the family Molossidae, it has been found that the conformation of the basisphenoidal pits offers an important systematic character which is highly specific in distinguishing species that appear superficially to be closely related. Moreover, there

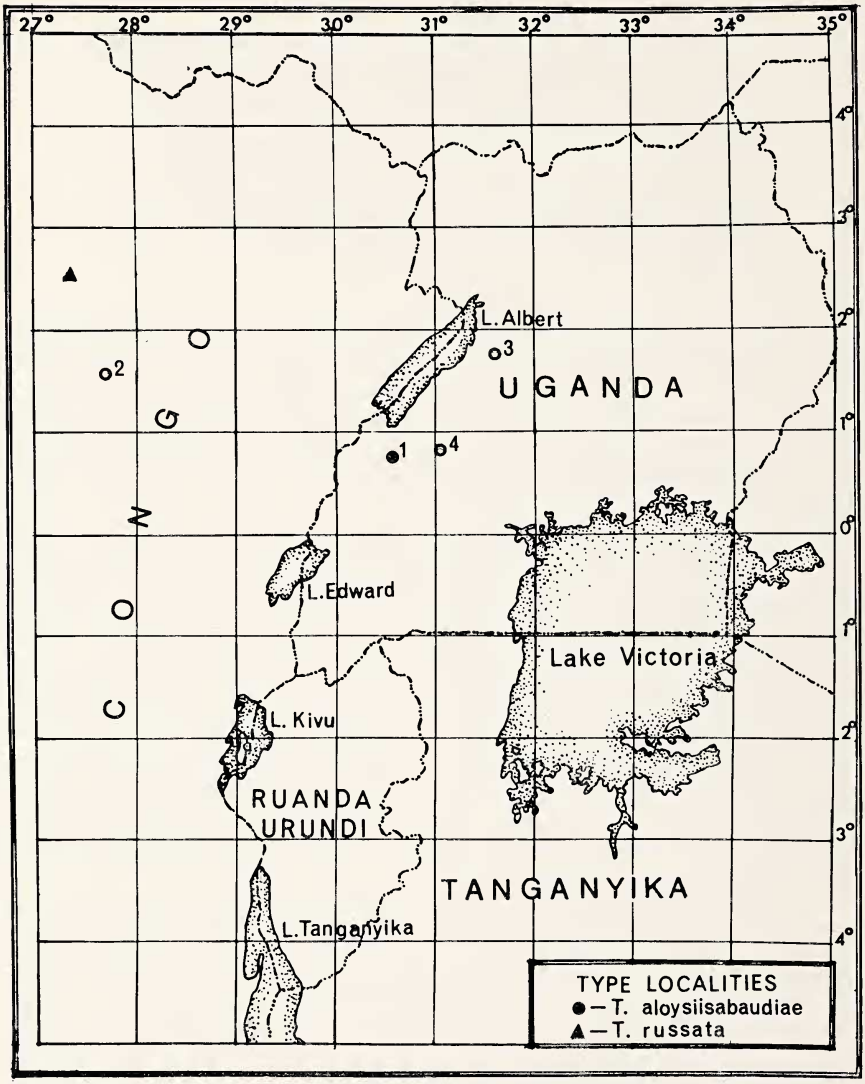

Figure 1. Map of central Africa showing the known distribution of *Tadarida aloysii-sabaudiae* and the type locality of *T. russata*. 1. Toro district, Western Province, Uganda. 2. Avakubi, Oriental Province, Congo. 3. Budongo Forest near Masindi, Uganda. 4. Kibale Forest, Uganda.

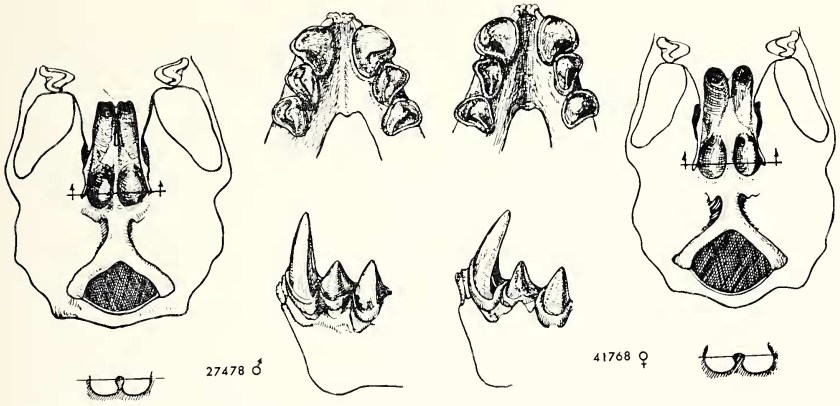

Figure 2. Sexual dimorphism in the relative size of the anterior lower premolar and in the basisphenoidal pits. Left: LACM 27478 ♂ from Kibale Forest. Right: ROM 41768 ♀ from Budongo Forest, Uganda.

appears to be a general correlation between the development of the pits with the size and complexity of the ears, with simple-eared forms such as *Platymops* having the least developed basisphenoidal pits, and species with larger and more complex ears having the highest developed pits, as seen in the genus *Otomops*. It is postulated that these two major characters are probably closely correlated with the echolocation mechanism. With this possibility in mind, a detailed study of this variation in basisphenoidal pits throughout the family is underway. In general, there appear to be some slight variations that may be correlated with age and, in some cases, with sex. In the case of the seven known examples of *T. aloysiisabaudiae,* the adult males appear to have slightly larger pits, with a narrower dividing septum between them, than in the case of the subadult males and adult females (Fig. 2). The detailed conformation of these pits appears to be distinctive from all other African molossids examined to date, except perhaps *T. russata,* which has been compared only by means of photographs of the holotype and an additional pair of paratypes. Even here there appear to be minor differences between the two taxa, but detailed studies of *T. russata* are still needed to make adequate comparisons. The medial walls of the pits are expanded beneath the central septum in *T. aloysiisabaudiae,* and in adults the distance between becomes less than .2 mm. The breadth of the dividing septum at its narrowest point ranges from .4 in young to .2 mm or less in adult males.

In general, there seems little doubt that *T. russata,* known only by the original type series (27 specimens), is the closest known relative of *T. aloysiisabaudiae*. The basic shape of the skull is strikingly similar but differs in being shorter (greatest length, 17.8-19.4 (holotype, 18.7) as compared to 20.4-22.1 in the known examples of the latter). The condylobasal length of the holo-

TABLE I

Measurements of the known specimens of *Tadarida aloysiisabaudiae* AMNH (American Museum of Natural History), LACM (Los Angeles County Museum of Natural History), ROM (Royal Ontario Museum)

		HOLO-TYPE*	ROM 38380	ROM 41768	AMNH 48934	ROM 46734	LACM 2748	LACM 2749
		Ad. ♀	Ad. ♀	Ad. ♀	Subad. ♂	Subad. ♂	Ad. ♂	Ad. ♂
External Measurements								
Total Length		110	122	118	109	112	115	117
Tail		40	42	44	38	37	40	41
Hind Foot		12	13	13	12	10	12	12
Ear		21	22	23	22	22	24	24
Forearm		52	52.7	52.5	48.8	51.0	49.5	51.5
Third Digit:	Metacarpal	51	53	51.6	—	50.6	51.7	51.5
	1st phalanx	21.8	22.2	21.4	—	21.0	22.0	21.0
	2nd phalanx	19.8	21.2	19.8	—	18.0	21.1	20.8
Fourth Digit:	Metacarpal	50	51.6	50.4	—	48.1	49.4	50.0
	1st phalanx	16.6	17.6	17.0	—	15.8	17.0	16.1
	2nd phalanx	10.7	12.3	11.8	—	10.2	11.1	10.8
Fifth Digit:	Metacarpal	28	31.3	31.5	—	30.8	31.1	30.5
	1st phalanx	14.2	15.2	14.7	—	14.4	14.4	14.6
	2nd phalanx	3.9	4.1	4.5	—	3.6	4.5	4.5

Cranial Measurements							
Greatest length	21.4	21.3	22.1	20.4	—	21.6	21.5
Condyloincisive length	19.5	19.4	19.9	18.5	—	19.9	19.8
Palatal length	8.0	8.2	8.3	7.9	8.1	8.4	8.4
Zygomatic breadth	12.3	12.6	12.2±	10.5	11.7	12.6	12.4
Mastoid breadth	11.3	11.3	11.4	11.1	—	11.6	11.7
Lachrymal width of rostrum	6.6	6.9	7.0	6.6	6.2	7.2	7.3
Interorbital breadth	—	6.6	6.7	—	5.9	6.8	7.0
Breadth of postorbital constriction	3.8	4.4	4.6	4.4	4.3	4.3	4.4
Height of braincase	7.3	7.0	7.1	6.8	—	7.5	7.4
Breadth of braincase	9.8	10.1	10.2	10.0	9.9	10.6	10.5
M^3 - M^3	—	8.7	8.4	8.4	—	8.5	8.8
C - M^3	7.7	7.8	7.6	7.5	7.5	7.6	7.7
C - C	—	5.5	5.4	5.6	5.2	5.5	5.5
Length of mandible	—	14.2	14.9	13.5	14.2	14.7	14.5
C - M_3	—	8.4	8.8	8.3	8.1	8.4	8.6

* From Lanza and Harrison, 1963

type is 16.6, as compared to 18.5 for a subadult and 19.4-19.9 in the five known adults of *T. aloysiisabaudiae*. In zygomatic width, Allen *et al.* (1917) show that 23 specimens of *T. russata* range from 10.5 to 11.4, whereas in six of the known *T. aloysiisabaudiae*, one subadult is 11.1 and the adults range from 11.3 to 11.7. In forearm length, 24 of the original *T. russata* ranged from 42 to 46 as compared to 48.8 and 51.0 in the two subadults, and 49.5 to 52.7 in five adults of *T. aloysiisabaudiae*. In general external characters the two taxa are strikingly similar, particularly in coloration, where they are essentially indistinguishable.

The type locality of *T. russata* at Meje, Congo (see Fig. 1), is only about 80 miles distant from the nearest locality of *T. aloysiisabaudiae* at Avakubi, Congo. Although it is not yet possible to demonstrate the true relationships of these two forms, their allopatric distribution and the fact that they seem to differ only in size, provide a strong suggestion that *T. russata* might ultimately be regarded as only a well-marked geographical race of *T. aloysiisabaudiae*.

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